Iyvst-mvgliw\$Texiræqx
Iyvstier\$Texir\$\$ jjggi
S jjggi\$Yvst¶ir\$hiw\$tvizixv

.IT4455<669;F5.

,55- IT 5\$5<6\$69; F5

TYVST

IYVSTIER STEXIRX SWTIGNONG EXMSR

,89- Hexi\$j\$tyfpgexsr\$rh\$qirxsr sj\$li\$verx\$j\$li\$texirx 6:24526449 Fyppixm 6449348 ,95-Mx5cp2>G56R 5939705G56R =3460 G56R =34805G56R 593<€0 E45L 9344

,65 - Ettpmgexmsr\$ryq fiv>4474<44629

,66-Hexi\$s \$ poork>5824=26444

,98-Rygping等gnhw\$irgshmck\$nd}hvsjæzsrsp\$lvihygxewi\$(nd\$pxivih\$wtignjngnx}\$rh\$ywiw\$divisj Ryopincw-yvirChmi\$j°vHnd}hvsjæzsrsp\$lVihyoxewi\$qn\$qshnjnmivxiv\$Wti~njnmx*\$oshnivirC\$yrh\$dvi Ziv{irhyrkir

Egminwrygg muyiwgsherxtsyvyri hml }hwsjæzsrsp81v hygæwi hsrxæ wt¶gmjæma iwxq shmjn i ixpiyv yxmawexsrw

,<8-Hiwmkrexih\$srxegxark\$\vexiw> EXFIGLG] HIHOIW JMJV KF KV MIMX PMPY QG\$RP\$TX\$\vert{W}I

,74 - Twesves> 5824<26444 YW :7<;59

,87-Hexi\$j\$tyfpmgexmsr\$j\$ettpmgexmsr> 6;24626446 Fyppixmr644634=

,;7-Tvstvmixv>Osvie\$Dyqls\$Tixxsgliqmgep\$Gs2\Pxh2 GlsrkrsIKyO\Wisyp\$OV-

,;6-Mrzirxsw>

ÆGLSMOKNIPSWY

0 { erknylgmx}\$,0V -

ÆNSLRWSROSIvng\$X2

Typm er\$1\$[E \$==5:7\$,YW-

Æ] MO\$Leroymp

0 { erkny lgmx}\$,0V -

Æ WLMR OF }srkglyp

0 { erknylgnx}\$,0V -

,;8-Vitviwirzexzi>Firihyq & pmgl & e | \$1.\$ep Lewipmri\$Peoi\$Pevxriw Vswirlimq iwxxewwi\$7409460 <5::=\$2 °rglir\$HI-

,9:-Vijivirgiw\$gmih> IT1E1\$4\$75:\$;=;

Rsxi>[mdmrrmriqsrxlwjsqxlityfpogexmsrsjxliqirxmsrsjxlikverxsjxliIyvstiertexirx0er}tivwsrqe}kmzirsxogixsxliIyvstierTexirxSjŠgisjsttswmmsrxsxliIyvstiertexirxkverxih2RsxogisjsttswmmsrwleppfiŠpihmre{vmxirviewsrihwexiqirx2MxwlepprsxfihiiqihxslezifiirŠpihyrxopxlisttswmmsrjiilewfiirteml2,Ev2==,5-\$Iyvstier\$Texirx\$Gsrzirxmsr-2

Hiwgwntxmsr

FEGOKVSYRH\$SJ\$XLI\$MRZIRXMSR

Xiglrmgep5miph\$sj\$li\$mzirxmsr

_4445a Xli tviwirxmrzirxmrvipexiwxs q shmjnih HJV rygping egmhw0q shmjnih HJVw erh xlinvywi jsvtvshyg1 mrk\$irixmgepp}\$q shmjnih\$tperxw2

Hiwgvntxnsr\$sj\$li\$Tvnsv\$evx

4446a Erxlsg}ermrwevie gpewwsjtnkgirxwxlexhil xivqmri jæ{iv gspsv erh tperx tokqirxexasr or erl kmswtivq tperxw2 Eqsrk erxlsg}ermrw0 tipevksrmhmr1 59 fewih tokq irw gsrjivfvglvih3sverki gspsvxs tperxw0 { logi g}ermborlerh hiptloroborlfewih tokq irxw gsrjiv vih erh zmspixgspsviegl ,Lspsr0ixep2TperxGipp;> 54;5154<7,5==9-?Xereoe0ixep2TperxGippTl}wmsp27=> 555=1556: ,5==<-2 H mjjivirx vexasw sjxliwi takqirxw 64 gsrjive { mini verki sjjps{ ivgspsw2Q er} erxlsg}ermr fmsw}rxlixmg kiriw lezi fiir mhirxmjnih2S ri oi} ir1 ~}qi mr xli fmsw}rxlixmg texl{e} mv hml}hvsjæzsrsp 81vihygxewi ,HJV-2Xli ir~}qi gsrzivw hml}hvsjæ1 zsrspv ,hrd }hvsoeiq tjivsp ,HLO-0 hrd }hvsuyivgixmr ,HLU -0erh hnl}hvsq }vngixnr ,HLQ --xs piygsg}ernhnrw2 Xli piygsg}ermhmrw evi wyfwiuyirxp} gsrziwih xs er1 xlsg\ermrw f\ sxlivir~\q iw2Xli gsrziwmsr sjHLO xs HLU erh HLQ evi gexep ~ih f } jæzsrsmin 7+1l }hvs | 1 }pewi ,J74-erh jezsrsmin 74941}hvs|}pewi ,J74-2 74 Wmrgi HJVw mr q swxtperxw ger gsrzivxeppxlvii hml }1 hvspezsrspv xs piyqsq}ermhmrw0 xli vexus sjxli xlvii gpewwiwsjerxlsg}ermrtnkgirxwevigemphixivgmrih f}xliegxzxxiwsjJ7LerhJ7+9L,Lspsr0ixep2Tperx Gips; >54; 5154 < 7\$, 5 == 9 -- 2

4447a Wmrgi tipevksrmbmrlfewih tokq irxwgsrjivxli sverki gspsv xs jps{iw0xliJ7+LerhJ7+9+Legxoznomiw q ywxfi efwirxjsve tperxxs lezi sverki gspsvih jps { 1 iw ,Y 2W 2texirx98544=:-2Mr q er } tperxwtigmiw0J74 erh J7-9-L evi irgshih f} e q yputpi kiriw0xlyw xli 84 q yxerxporiw xlexpeqo J7L erh J7+9L evi rsxiewn jsyrh2Xlnw tevameno eggsyrw jsvxli vevak sjsverki1 qspsvih jos { iww mr wsq i tperxwtiqniw2Mrefnpx} xs vihyqi HLO xs piygsg}ermhmrf}HJV mrwsqiwtigmiwgerepws geywi xli pego sjsverkilgspsvih jps{iv2Jsvi|eq tpi0 89 HJV w jusq Tixyrme erh G }q fmbmyq gsrzivxHLO xs mxw piygsg}erman ziv} mijjomirxp0xlyw xliwi wtigniw hs rsxeqqyq ypexi pevki vexus sjtipevksrmhmrlfewih erl xlsg}ermrwizir mjJ74 erh J7+4 evi efwirx,Kivexw0 ixep2Tperxe 599>7:817:< ,5=<6-?Nslrwsr0ixep2Tperx 94 N25=x5k9,5===-2ErsverkilgspsvihTixyrme { ewir1 kmriivih f} mrxshygmrk e q em-i HJV xs e wtigmepq y1 xerxpmri sjTixyrme xlexpeqow J7L erh J7+L ,Qi}iv0 ixep2R exyvi 774×;;1:;<,5=<;-2W mrgi xli q em-i HJV ger gsrzivxeppxlvii hml }hvsjæzsrspv x xlimvpiygsg}el 99 rminrw0wygleqyerxprixlexeggyqypexiwHLO{ew rigiwwev} jsvxli hizipstq irxsjsverkilgspsvih Tixy1 rme2Xli rigiwwnx} sjxli wtignepq yærxpri ger fi gnvl

gyq zirxih f} ywmrk e HJV xlexyxmmaiw HLO tvijivir1 xmmm \$\\$ziv\HLU \erh\HLQ 2\$

4448a Ywnrk glmqivmg HJVw fix{ iir Tixyrme erh Kivfive HJVw0 { i mhirxminh e vikmsr xlexhixivq mriw xli wyfwxexi wtignigma} sjHJV2F} epivmrk er eq mrs egmh mr xli vikmsr0 { i hizipstih e HLOlwtignigm HJV xlexgsrzivw HLO tvijivirxmepp} szivHLU erh HLQ2 [lir i | tviwwih mr tperxw0 xli HLOlwtignigm HJV mrl gviewiw xli tipevksrmhmrlfewih tnkq irxw vikevhpiww sj J7Ł\$egxzma}2

4449a ITE61475:;=; hiwgwfiw xerwkirmg tperw wyglewtixrmel}fwheegsremmrkeri|tviwwmsrzigsv gsqtwwmrkevigsqfmrerxHRE wiuyirgi irgshmrker epivih hml}hwsjmezirsp181vihygsewi "HJV- xlex lew fwsehiv wyfwxexi wtigmjmgmal (md vikewh xs hml)1 hwsceiqtjjwsp2Xli xerwkirmg tperw lezi er epivih tlirsxltihyi xsermgviewih gsrxirxsjtipevksrmhmr1 fewih\$tmkqirxw2

_444:a Nslrwsr ixeperepwimr Xli TperxNsyvrep,5===-05=,5-0<51<9 xli wyfwxexi wtigmjogneg sjHJV erh wtigypexi xlexsri sve ji{ tsmrxq yexmsrwmr HJV gsyph hveq exogepg} higviewi xli fmrhmrk ejjmrmeg xs HLO fyxrsx ettvigmefg ejjigxxli fmrhmrk ejjmrmeg xs HLU erh HLQ 2

9 WYQQEV]\$SJ\$XLI\$MRZIRXMSR

_444;a Eggsvhmrkp}0xli sfnigxsjxlmv mrzirxmsr mv xs tvszmii wyfwxexilwtignig HJVw {lngl lezi epivih eq mrs egnh wiuyirgiw exxli wyfwxexi wtignignmx}hixivl q mmrk\$ikmsr2

_444<a Mkmw er epws sfnigxlivim xs tvszmhi e HLO1 wtigming HJV erh rygping egmhw irgshmrk xli HLO1wti1 gming HJV 2

_444=a WxppjyvdivOnknwersfrigklivinrstvszmbi xerwkirmg tperxwi|tviwmrk kli HLOlwtignjmg HJV {lmgl gsrjiwe tlirsk}ti glevegxivnih f} kli mrl gviewih gsrxirxsjtipevksrmmrlfewih tmkqirxwmrkli tmerxw2

_4454a Mr eggsthergi { md xli sfrigxw0xli mrzirxmsr mrgpyhiw xli q shmjrih HJVwerh rygping egnbwirgshmrk xli q shmjrih HJVw { lmgl lezi epxivih eq mrs egnb wil uyirgiwexxli wyfwxexi wtignjmgmx} hixivq mrmrk vikmsr2 Xli tvstivxmiw sjq shmjrih HJVwevi glevegxivnih f } xlinvefmmxmiw x vihygi sri wyfwxexi tvijivirxmemp} eq srk\$HLOC\$HLUC\$erh\$HLQ 2

_4455a Xli mrzirxær epws mrgpyhiw e q shmih HJV xlexhiygiw#LO\$vijvirxæp}\$ziv#LU\$erh\$LQ2
_4456a Xli mrzirxær epws mrgpyhiw tperxw lezmrk ex piewxsri gippxærwjswqih {md e zigpsvgsq twwmrk ex piewxe tsvær sjxli q shminh HJV rygping egmhw2Wygl tperxwlezietlirsxtiglevegxivnihf}xlimrgviewih gsrxirx\$j\$tipevksrmmrlfewih\$mkqirxw2

_4457a Xlimrzirmer epws mrgpyhiw zigsew getefpi sj merwjewq mrk e tperrxgippos mrgviewi mli germirmsjtipl ewksrmmmlfewih tokq irmw2

_4458a Xli mrzirxosr epws mrgpyhiw qixlshw jsvtvs1 hygmrk tperxw lezmrk xli mrgviewih gsrxirxsjtipevks1 rmmmrlfewih tmkq irxw2Xli qixlshw mrgpyhiw wxitw sj xerwjsvqmrktperxgippw{mdzigsswgsrzemmrkxliqsh1 mjmih HJV kiri?vikirivexmrktperxwjsq xli xerwl jsvqih gippw erh wipigxmrk xli tperx lezmrk xli mr1 gviewih\$gsrxirx\$j\$tipevksrmhmrlfewihltmkqirxw2

FVMIJ\$HIWGVMTXMSR\$SJ\$XLI\$HVE[MRKW

_4459a Jnkyvi 5E nw e wgliq exmg hmekveq wls{mrk xlvii glmq ivmg HJVw2 Fpego few mrhmgexi wiuyirgiw jsq e Kivfive HJV erh kve} few mrhmgexi wwiuyirgiw jsq e Tixyrme HJV2R yq fiw evi nyrgxmsrepeq mrs egmh tswnmsrw jsq xli xerwpexmsr wevxwnxi sjxli Kivfive HJV2G 250G 250G 27 evi xli req i sjxlvii hmjjivirxgln1 q ivmg HJVw2

_445:a Jnkyvi 5F wls{w vitviwirrexzi js{iw sj 59 xerwkirng Tixyrne i | tviwwnrk glng ive HJVw svgsrxsp HJV2K ivmrhngexixli xerwkirng js{ivi | tviwwnrk Kivl five HJV erh GZ0GZ0erh GZ7 mrhngexi Glng ive 50 Glng ive 60erh Glng ive 7 iegl2V P45 pmri lewe jyrg1 xmrepTixyrne HJV kiri2Xli GZ erh V P45 fsvi wng ngev 64 tmrogspsvih js{iw {lnpi sxliw fsvi fvnglvih gspsvih js{ivXli xerwkirng [<4 js{ivi | tviwwnrk GZ lew tmrogspsv0{lnpi xerwkirng [<4 js{iwi | tviwwnrk GZ 6 erh GZ7 lezi sverki Ymglvih gspsv2Xli sverki Ymgl vih gspsvger fi epws sfwivzih mrxli xerwkirng Tixyrne 69 js{iw\$| tviwwnrk\$di\$rexzi Kivfive\$HJV2

_445;a Jnkyvi5G wls{wxliXPG erep}wnwhexesjtnk1 qirxw tvshygih mr xerwkirmg Tixyrme jps{iw ri | xxs werhevh tokqirxw ,tipevksrmhmr ,Tk-0g}ermhmr ,G}-0 erh hiptlmrmhmr ,Ht-2Xli xerwkirmg jps{iw i|tviwwl 74 mrk G25 lew q emrp q ermmrlerh hiptlmrmmmrlfewih tmk1 qirxw0{lmpi xli jos{iwi|tviwwmrk G26 erh G27 lezi q enrol tipevksrmhnrlfewih tokq irxw mrehhmansr xs wq epp eq syrxsjg}ermhmrlærh\$hiptlmrmhmrlfewih\$tmkqirxw2 445<a Jnkyvi 6 wls{w xli eqnrs egnh wiuyirgi sj 79 Kivfive HJV epokrih { mxl sxlivvitviwirxexmzi HJV wi1 uyirgiw2XliGpywep(tvskveq { ewywih xs epokrqypl xntrpi eq nrs egnh wiuyirgiw ,Xlsq wsr0ixep2Rygp2Egnhw Viw266%:;718:<4 ,5==8-2 Xli wyfwxexi wtignjenx} hixivq mornork vikmsr nw fs ih erh xli 578 xl eq mors egmin viwnhyi sjKivfive HJV erh gsviwwtsrhmrk eq mrs egmh viwnhyiwsjHJVwjwsq e ji{ vitviwirzexnziwtigniwevi fsth\$1tih2

_445=a Jnkyvi 7E wls{ w wnd ihnvigxih q yzekiriwnw sj wyfwxexi wtignjogne} hixivq namek viknsr2Xli wiuyirgi gswiwtsrhw x xli wyfwxexi wtignjogne} hixivq namek vil knsr sjKivfive HJV2Evxs{ w erh pixiw nehogexiw eq nl rs\$egnhw\$lex\${ ivi\$glerkih\$s2

_4464a Jnkyvi 7F wls{ wjs{iwsjxerwkirmgTixyrme i|tviwwmrk qyzxih Kivfive HJV kiri2Kivmrhmgexiw 94 xli{mmhx}tiKivfive HJV erhX576Z mrhmgexiwxliqyl xexih HJV xlexlew zemri mrwxieh sjxlvisrmri exxli 576xl tswmmsrsjKivfive HJV 2Req iwsjxxlivq yzexih HJV wjsms{ih xli weq i rsxxmsr vymi2Empxerwkirmg mriwi|gitxR578P erh I589P lezi xli weq i fvmg vih 99 gsmsvih jms{iv2Xli R578P fsvi wmklx}hmjjivirxgsmsvih jms{ivxshxpsxvix slmxixms}iwx2

4465a Jnkyvi 7G wls{we XPG erep}wnwsjtnkqirxw

tushygih mr xli xerwkirmg Tixyrme jps { iww2Ew i | tigxl ih0xli I589P hmm rsx eggyq ymexih er } erxlsg}ermr2 Xli R578P eggyq ymexih q swxp} timevksrmmr { lmmi sxl1 ivq yxexih HJV erh { mmh x}ti Kifive HJV eggyq ymexl ih wmkrmiggerxeq syrxsjg}ermmr erh hiptlmrmmr mr ehl hmmmsr\$s\$tivmevksrmmr2

4466a Jnkyvi 8E wls{w xli hizipstqirxsje HJV xlexhnwtpe} xli epxivih wyfwxexi wtignjognx}2 [V erh [Z mrhmgexi Tixyrme pmriw xlex evi hjv¹³¹0 fyx J7£/^{3/} ,[V-svJ7 θ 4 $^{/3}$,[Z-2Xliqevo 1 π chrogexi ψ rs HJV kiriOHJV^{R578P} mrhmgexiwHJV xlexlew piygmri mrwxieh sjewtevkori exxli 578^{xl} tswomsr sjKivfive HJV Oerh HJV [X mrhmgexiwxli { mph x} tiKivfiveHJV2Xlijnss { iv psgexih mr xli gysww wigxmsr mrhngexi xli [V sv [Z xerwkirmg $\sin \{iw | tviwwmrk HJV^{R578P} svHJV^{X2} \}$ 4467a Jnkyvi 8F wls{we XPG erep}wnwsjtnkqirxw tvshygih mrxli xerwkirmg pmriw2Tk0G }0erh H t mrhmgexi tipevksrmbnr0g}ermbnr0erh hiptlmrmbnr2Xli [Verh [Z pariwi|tviwwark { mphx}tiHJV eggyq ypexihg}ermi hmr erh hiptlmrmhmr iegl2 Xli [V pmri i tviwwmrk HJV^{R578P} eggyqypexih tipevksrmmr erh g}ermmr0 { logixli [Z porii | tviwwork HJV R 578 P hohorsxeggyq y 1 pexih er} tokq irxsxlivxler fegokvsyrh pizipsjhipl tlmmhmc2

HIXEMPIH \$HIWGVMTXM5R\$SJ\$XLI\$MRZIRXM5R

4468a Mreggsvhergi { mal xli tviwirxmrzirxmsr0xli wyfwwexi wtignjogne hixivq mmrk vikmer {ew mhirxojnih f } hixivq mrmrk xli efmpaniw sjxlvii glmq ivmg HJV w xs qexep ~ i xli vihyqxxx sjHLO mr xli xerwkirmg Tixyrme poriw2Mr svhivxs mhirxmi} xli vikmsr sjHJV xlexhixiv1 q mriw mww.yfwxexiwtigmignx}0{igsrwxygxihglmqivmg HJV kiriwywmrkgHRE wiuyirgiwsjTixyrmeerhKivl five2Xlsykl xliwi x(s HJVw lezi lnkl wnq npmevnx) ex xli eq mrs egmin pizipOKivfive HJV nov efpi xs gexep ~i hml hvsoeig tjivsp ,HLO- { lmi Tixyme HJV gerrsx ,Ipsq ee ixep20 sp2Kir2Kirix268< > 8=1:9: ,5==9-2 [i fympxxlvii hmjjivirxglmq ivmg kiriw ywmrk vikmsrw sj lnkl lsqspsk} ewgsqqsrTGV tvmqivwmxiw ,Jnk5E-2 Xlighmqivmgkiriw {ivixxerwjsvqihmcxse {lmxijps{1 ivih Tixyrne qyzerx, [<4-xlexpegow HJV egxoznx] erh eggyqypexiw twoqewp HLO fyx {mxl ettvigmefpi eq syrxwsjhml }hvsuyivgixmr ,HLU -erh hml }hvsq }vmgil xmr ,HLQ - ,Lymxw ixep205==8-2G lmg ive 5 tvshygih tmro jps{iw-{lmpiGlmgrivew6erh7fsvisverki1tmcojps{1 iw,Jnk:25F-2XlilyisjGlmqive5jps{iwnwziv}wnq1 mpevxs xlimcfvih Tixyrmeq yxerxVPS 50{ lmgl lew jyrg1 xmsrepHJV egxmxx erh eggyq ymexiw HLO2Xlmr me iv glvsq exskvetl } ,XPG - hixivq mrih xlexGlmq ive 5 tvs1 hygin q emrp g}ermin erh hiptlmrmin ,Jnk25f-2Glmqi1 vew 6 erh 7 twoq ewp tvshygih tipevksrmhmr ,Jmk25G-0 { lmgl mv xli hs{ rwxxieq tvshygxsjHJV vihygxmsr sj HLO2Xliwi viwypw mrhmgexih xlexxli vikmsr sjHJV gsrjiwark xli efamas} xs vihygi HLO { ew fix{ iir Glat q ivew 5 erh 62Xli mhirxmih vikmsr ,ettvs 284 eq mrs egminw-nwlnklp}zevnefpimrHJVwjvsqhmjjivirxtperxwtil gmiw2F}i|ggyhmrkxligsqtpixip|gsrwivziheqmrsegml

wiuyirgiw exxli fsvhiwoxli mhirxmih vikmsr nw revl vs{ih hs{rxs6: eq mrs egmlw2Livimrejxiv0xlmv vikmsr nw vijiwih ew wyfwxexi wtignjank hixivq namak viknsr2 Eri|eqtpi sjxli wyfwxexi wtigmjonk} hixivq mrmrk vi1 kmsrmreji{ vitviwirxemzi HJV w mw wls{rmrJmkyvi 62 _4469a Xli mrzirxosr tvszobiw xli q shojnih HJV ry1 gping egnhwerh irgshih HJV w xlexlezi epxivih eq mrs egmin wiuyirgiw exxli wyfwxexi wtigmingnx} hixivq mrmrk vikmsr2WyglHJVwlezitvstivxiwglevegxivrihf}xli epxivih wyfwxexi wtigmjngnx}2Livinrejxiv0HJVwxlexgex1 ep~i xli vihygxasr sjsri wyfwxexi tvijivirxæpp} sziv szlivz s wyfwzeziw evi vijiwih ew wyfwzezilwtignje HJV w2Mr xli tvijiwih iq fshmq irxw0xli mrzirxmsr tvs1 zmliw xli q shmjrih HJV xlexlew epxivih eq mrs egml ex 578xl eq mrs egml viwmlyi sjKivfive HJV svxli gswil wtsrhmrk eq mrs egmh viwmhyiw sjHJV w jwsq sxlivwtil gmiw2Wygl HJVwlezi twstiwniw glevegxivmih f} gexl ep~mrk xli vihygxmsr sjHLO tvijivirxmepp szivHLU erh H L Q 2L ivimrejxivOH JV w xlexgexep}~i xli vihygxmsr sjHLO tvijivirxæpp szivHLU erh HLQ evi vijiwih ew HLO1wtigming HJV w2Xli578xleq mrs egmin viwnhyisj Kivfive HJV erh gswiwtsrhmrk eq mrs egmin viwmhyiw sjHJVw jsq e ji{ vitviwirzexzi wtigniw evi wls{r nr\$Tnkyvi\$62

446:a Mr eggsvhergi { mxl xli tviwirx mrzirxmsr0 e HLO1wtigming HJV (ew hizipstih f) vitpegmrk ewtevekmri ex578xl eq mrs egmh viwmhyi sjK ivfive HJV xs piygmri2Xli i tviwwmsr sjxli HLO1wtigmjmg HJV mr [<4 Tixyrme pmri0 { lmgl eggyq ypexiw pevki eq syrxsj HLO mr ehhmasr xs ettvignefpi eq syrx sj HLU erh 74 HLQ Ogeywih xli tvshygxmsr sjsrp tipevksrmmr2Xli i tviwwmsr sjrexzi Kivfive HJV mrxli weq i Tixyrme pri geywih xli tvshygxusr sjettvignefpi eq syrxw sj g}ermine erh hiptlandam ar ehhans s tipevksrman Jnkyvi 7-2 Wnrgi xli [<4 Tixyrne pri { i xverwjsvq ih eggyq ypexiwq enrp} HLO { nxl wq eppeq syrxsjHLU erh HLQ 0 mx { ew rsx gpiev mj xli R578P q yxerx HJV gsqtpixip pswxxli getefnpx sjvihygmrk HLU erh HLQ 2Xs mrziwakexi mjxli R578PqyærxHJV tvshygiw srp} tipevksmbor or xli tviwirgi sjjypp} egxozi jæzsrsml1741 hvs | }pewi ,J74- sv jæzsrsml17494 1}hvs|}pewi ,J7+9-L-0 { i gvswwih syv R578P xerwjsvą erx { mxl Tixyme poriw xlex evi imxliv hjv¹³¹3 $J74L^{/3}$, [V pmri-svhj $\sqrt{3}J7-94L^{/3}$, [Z pmri-2Ewwls{r mr jnkyvi 8E0fsxl [Verh [Zpariw fsvi {laxi jas{iw ewi tigxih2 [lir xliwi pmriw {ivi gvswwih {mxl xli R578P xerwjsvqerxw0 xli [V pmri i|tviwwmrk xli qyærx HJV ,[VHJVR578P- leh sverki gspsvih jas{iwu{lmpixli[Vi|tviwwmrk{mphx}tiKivfiveHJV , [V3HJV $^{[X]}$ -leh vih gspsvih jps $\{iw2Yrpmoixli[V]$ poriw0xli [Z poriw i tviwwork xli qyxerxHJV ,[Z3 HJV^{R578P}-2fsvi {lmxi jos{iw {lmpi [Z poriw i|tviwwmrk xli {mmh x}ti HJV ,[Z3HJV [X-leh zmspix gspsvih jps{ iw2Xs hixivq mri xli tnkq irxv tvshygih mr xliwi gwswwih priw0{ i tivjsvq ih XPG erep}wnw2Jnkyvi 8F wls{wxlexxli [VHJVR578P eggyq ypexih e pevki eqsyrx sj tipevksrmbnr {lmpi [VHJV [X qenrp] eggyqypexih g}erminmr2 Mr xli {lmxi jps{ivih [Z3

HJV^{R578P}0 rs ettvigmefpi eq syrw sjerxlsg}ermmrw eggyq ymexih sxliv xler e fegokvsyrh pizip sj hiptlmrmmr2 Mr gsrxwx xs [Z3HJV^{R578P}0 xli [Z5HJV^{R578P}0 xli [Z5HJV^{R578}0 xli [Z5HJV^{R578}0 xli [Z5HJV^{R578}0 xli [Z5HJV^{R578}0 xli [Z5HJV^{R5}

_446;a Xlimrzirxosrepwstwszobiwtperxwlezorkgippw xerwjsvq ih { mxl zigxsw gsq tvmmrk expiewxe tsvmsr sjxliwyfwxexilwtigmjmgHJV rygpingegmlnw2Wygltperxw lezi tlirsx tiw glevegxivrih f } xli mrgviewih gsrl xirxsjerxlsg}ermrwwtigminhf}xliwyfwxexiwtigming HJV w2Mrxlitvijiwih iq fshmq irxw0xlimrzirxmsr tvs1 zmhiw tperxwlezmk gippw xerwjsvq ih $\{$ mxlzigxswgsq1twamrk expiewxe tswasr sjxli HLO1wtigmjng HJV ry1 gpingegnhw2Wygltperxwlezitlirsx}tiwglevegxivmih f } xli mrgviewih gsrxirx sjtipevksrmhmrlfewih tmkl q irxw2Tperxwxlexger fiywihxs tvegxogixli mrzirxosr mrgpyhi tperxw {mxlmr xli Hmzmwnsr sjQekrspmtl}xe0m2i2 xli erkmswtivq w mrgpyhi xli hmgsx}pihsrw erh xli q srsgsx}pihsrw2 Tevxogypevp} tvijiwih Svhiw sjerl knswtivqw eggsvhnrk xs &Tperx W}wxiqexngw&O W2F2 Nsriw0 Nv2 erh E2I2 Pyglwmrkiv mrgpyhi Q ekrspæpiw0 Peyvepiw0Evnwspsglmepiw0R }q tleiepiw0Veryrgypepiw0 Gev]stl]ppepiw0 Qepzepiw0 Zmspepiw0 Gettevepiw0 Ivnl gepiw0Tvmgypepiw0Vswepiw0Jefepiw0Q}vepiw0Gsvrepl iwOV leg repiwOWetmrhepiwOKivermepiwOEtmepiwOKirl xærepiw0 Wsærepiw0 Peq æpiw0 Wgvstlyævæpiw0 Geq 1 terypepiw0Vyfmepiw0Hntwegepiw0Ewxivepiw0L}hvsglevl mepiw0Evepiw0G}tivepiw0Pmpaepiw0erhSvglmhepiw2Tev1 xogypevp}tvijiwihtperxwnrgpyhisvglnh0nvnw0geqterype0 kirxære0tlps |0g}gpeq ir0iywxsq e0gvsgyw0hiptlmrml yq 0ekivexyq 0glv}werxliq yq 0Tixyrme0gegxyw0pmq s1 rmyq 0ewxmfi0gevrexmsr0KivfiveOfvewwmgeOmg texmirgi0 kivernyq OhelpeeOwyrjps{ivOhnerxLywOkps|mrneOgepihy1 peOfippwOveryrgypywOewxivOxekixiwOwepzneOlnfnwgywOgnwl wnyq 0 kshime0 gexleverxlyw0 epwwyq 0 pytnryw0 tswy1 pege0hvsxlierxlyw0xypnt0ppp}0revgnwyw0jviiwne0eriq1 sri0kpehrspyw0gepehryq0evglrqiriw0eglrppie0eketer1 xlyw0eixlmsriw0eppyq0epvxsiqivæ0eqev}ppw0erekepl pow0erhyswegi0eriqsri0erxnwlnryq0euympikne0evqi1 wmeOewtivypeOfiksrmeOfvs{eppmeOgeppmaxitlywOgeqippmeO gierszlyw0glmsrshs e0gmzyw0gmzvome0gpiq ezzw0gsmglml gyr0 gsrwsphe0 gsvryw0 gswq sw0 hiyx-me0 hnkmepnw0 iwkkivsr0 ivshnyq0 iv}wnqyq0 iv}xlvsrnyq0 jipogne0 ke~erme0k}twstlmpe0lipirmyq0lipmerxliqyq0lipm1 stlme0lnttiewxyq0l}egnrxlyw0l}hverkie0nfivnw0nts1 q sie 0m/me Omegeverhe Ooepg me Oospo{ mæ-me Opekiwww.siq me O pexl}vyw0pezexive0piksywne0pi{ wne0pnryq 0psfipne0psf1 ypewe0qekrspe0qepyw0qepze0qexlmspe0qivirhive0 q mg ypyw0 q }swsxmw0 revgnwwyw0 riq iwnæ0 rmgsxmere0 rstepsglme0r}qtleie0sqtlepshiw0swlvswerxlyw0 :

swxiswtivq yq 0s epnw0teisrne0tipevksrnyq 0tirwxi1 q sr0 tirzew0 tiwgeppw0 tiwngevme0 tpex}gshsr0 tspi1 q srnyq 0tspkepe0tsxirxpe0tvnq ype0tvyryw0tywgloni rmeOvlshshirhvsrOvlshsl}ts|mvOvswiOwemrxteypmeOwe1 tsrevme0 we mjveke0 wgefmswe0 wglm-swx}mw0 wglpyq1 fivkive0 wglmpe0 wihyq0 wirigms0 wmpiri0 wsperyq0 wtmeie0wegl}w0wxitxsgevtyw0w}vmrke0ækixiw0ær1 egixyq 0xlyrfivkme0xl }q yw0xsvirme0xsteispyq 0ziv1 fire0zivsrmge0zmfyvryq0zmrge0zmspe0zmmow0{exwsrme0 erh ~mrme2Xlifvseh ettpogefppox} sjxliq shmjnih HJV rygping egnhwnw fewih sr xli yrnziwepjyrgxmsr sjHJV mr erxlsg}ermr fmsw}rxliwmwmr hmzivkirxtperxxe|e2Xli tevirxtperxywih xs tvegxggi xli mrzirxusr ger fi e { mph x}tizeværx0eqyærx{lmgllewfiirkirivexihf}xli q yækiriwnw0sve xærwkirng pri xlexlew fiir kirivl 59 exih \$1 \$ li\$ ligsq fmrer \$ light muyiw 2

446<a Xlimzirxer eps tuszmiw terxxerwjew el xer zigsew gsq twwrk expiewxe tsvær sjwyfwxexil wtignig HJV rygping egmw2M xli tvijiwih iqfshml qirw0 xli mzirxer tuszmiw e terx xerwjew exer 64 zigsevgsq tuwnrk expiewxe tsvær sjHLOlwtignigHJV rygping egmw2Tevægypevg} tvijiwih tusq sxiv se huzi xli i tviwwær sjxli HLOlwtignigHJV rygping egmw nw xli geynnigs (iv q sweng zmyw 79W tuskim tusq sxiv2 Ls{iziv0 sxliv gsrwxmyxmzi tusq sxiw0 xmwyi wtignig 69 tusq sxiw0 ximhygmfpi\$tusq sxiw0 yer\$fi\$eps\$ywih2

446=a Xlixerwjewq exer sjtmerwyger fi gewnih syx

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tperxq spigypevfmspek}2Tevxgypevqixlshw jsvxerwjsvl 74
q exer mrgpyhi xli xerwjivsjrygping egnhw mrxs e tperx
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4474a Vikirivexosr sjtperxw josq xli xverwjsvqih gipwgerfigewnih syxf}er}qixlshwors{rxsxlswi wompih mrxli ev2Wii0i2k20Qixlshw mrIr~}qspsk}0wy1 tve22Qixlshw mr Ir~}qspsk}0Zsp55<?erh Opii ixep2 84 ErryepVizmi{ sjTperxTl}wmspsk} 7<>8:;18<:2Xverw1 jsvq ih gipwsvtperxwevi wipigxih fewih sr xlinvviwnwxl ergi xs givemr gliq mgepv wygl ew erxnfnsxngw svfewih srxlinvtlirsx tiwglevegxivnihf } xlinrgviewihgsr1 xirxsjtipevksrmhmrlfewih tmkqirxw2Xli xerwjsvqih tperxwger fi wipjljivxpraih svgvswwih { md sxlivtperxw2 Ejxivxli jivxpaexsr0xli tperxwi|tviwwrk expiewxtsv1 xxsr sjxlig shminih HJV rygping eqnhw qer fi wipiqxih fewih sr xlinv viwnwærgi xs givænr gliq ngepw wygl ew erxofmsxogw svfewih sr xlinvtlirsx tiw glevegxivnih 94 f } xli mrgviewih gsrxirx sj tipevksrmhmrlfewih tmkl q irw2Epxivrexzip0xli xerwjsvq ih gippw sve tevxsj xerwisug ih\$perxx\$per\$i\$veixih\$s\$xliv\$perxx2

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G penor w

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 ewi ,HJV xlextvijivirxæpp gexep}wiw xli vihygl
 xmsr sjhnl }hvsoeiq tjivsp,HLO-szivhnl }hvsuyivl
 gixmr ,HLU erh hnl }hvsq }vmgixmr ,HLQ xs piygsl
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 xli gshsr jsvewteveknri ,R svEwr-viwnhyi extsl 84
 wmmsr 578 sjxli irgshih tsp}titxnhi ew nhirxnjnih
 f} Jnk26 lew fiir q yxexih xs e gshsr jsvpiygmri
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- 62 Xlirygping egnh sjgpeng 50gsq tvnmrk xlirygping 89
 egnhwsjKivfiveHJV {livimrxligshsrjsvxliEwr
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 tvoriw e wyfwæxilwtignjog HJV rygping egnh ew
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- 82 E zigssvew gæng ih nr gæng 70 {livinr wenh tvs1 99 q sxiv\$w\$s\$gsrwxxxi\$vsq sxiv2
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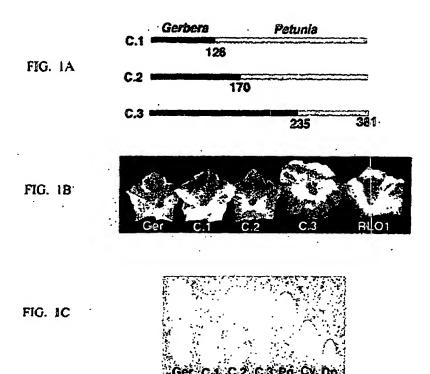


FIG. 2

: KAKTVKKLVFTSSAGTVBCQEKQLHVYDESHWSDLDFIYSKKMTAWMYFVSKTLAEKAAW : KAGTVRRVIFTSSAGTVBVQENQMPEYDESSWSDVDFCRRVKMTGWMYFVSKTLAEKAAW : EAGTVRRIVFTSSAGSVBIEERPRPAYDQDBWSDIDYCRRVKMTGWMYFVSKALAEKAAM : QAKTVKKFIFTTSGGTVBVEEHQRPVYDETDSSDMDFINSKKMTGWMYFVSKILAEKAAM : KANTVKRLVFTSSAGTLBVQEQQKLFYDQTSWSDLDFIYAKKMTGWMYFASKILAEKAAM Gerbera Lilium Hordeum Antirrhinum : Petunia KAKTVKKLVYTSSAGTVBVQETQLPVYDESHWSDLDFIYSKIMTAMMYFVSIKTLAEKAAM KAKTVKKLIYTSSAGTVBVREHQLPVYDESHWSDMDFIYSTKMTAMMYFVSIKSLAEKAAM KAKTVKRLVFTSSAGTVBVQEHQQPVFDENNWSDMDFIYSTKMTAMMYFVSIKSLAEKAAW KAKTVRRFVFTSSAGTVBVEEHQKNVYDENDWSDLEPIMSKIMTGWMYFVSIKSLAEKAAW Callistephus: Daucus Camellia Arabidopsis KAKTVKILVFTSSAGTVDVQEQQKPVYDENDWSDLDPINSTKMTGWMYFVSKILAEKAAW KAKTVKILVFTSSAGTLBVQPQQKPVYDESCWSDLDPIYAKKMTGWMYFASKILAEKAAW KAKTVKILVFTSSAGTUBVQPQQKPVYDESCWSDLDPIYAKKMTAWMYFVSKILAEKAAW AKTVRIVFTSSAGTVBVEEHQKSVYDETDYSDLNPIYSKKMTGWBYFVSKILAEKVAW Gentiana Ipomoea Vitis Porsythia KANTVKFLVFTSSAGTLDVQEDQKLFYDETSWSDLDFIYAKKMTGWMYFVSKILAEKAAM Lycopersicon : kagsvkrviftssagtvnveehqaavydenswsdlhfvtrvkmtgmmyfvsktlaekaaw kaktvqrlvftssagtlmavehqkqmydescwsdvefcrrvkmtgmmyfvsktlaeqeaw kaktvrrlvftssagsvnveetqkpvynesnwsdvefcrrvkmtgmmyfasktlaeqeaw Brombeadia Lotus Rosa Glycine KAKTVRRLIFTSSAGTLNVIERQKPVFDDTCWSDVEFCRRVKMDCWMYFVSKTLAEKEAW EAGTVRRIVFTSSAGTUMLEERQRPVYDEESWITDVDFCRRVKNIGWMYFVSKILAEKAA
EAGTVRRIVFTSSAGTVMIEERQRPVYDQDMSDVDFCQRVKNIGWMYFVSKSLAEKAA
KAKTVRRLIYTSSAGTUMVTEDQKPLWDESCWSDVEFCRRVKNIGWMYFVSKSLAEKAA
AGTVKRIVFTSSAGTVMIEERQRPSYDHDDWSDIDFCRRVKNIGWMYFVSKSLAEKAAM Zea Sorghum Medicago Oryza : KAKTVRRLVFTSSAGAVALEEHPKEVYSENNWSDVVFCRKVKMTGWMYFVSKTLAEQAAW Fragaria

